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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,821	03/09/2001	Akira Sakaigawa	55702 (70840)	6625
21874	7590	05/10/2004	EXAMINER	
EDWARDS & ANGELL, LLP			LESPERANCE, JEAN E	
P.O. BOX 55874			ART UNIT	
BOSTON, MA 02205			PAPER NUMBER	

2674

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/802,821

Applicant(s)

SAKAIGAWA ET AL.

Examiner

Jean E Lesperance

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-10 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent # 5,666,173 ("Mase et al.") in view of U.S. Patent # 6,195,147 ("Asao et al").

As for claim 1, Mase et al. teach a pair of substrates (column 21, line 43); a liquid crystal layer provided between the pair of substrates and formed of a liquid crystal material in which an aligning direction of liquid crystal molecules changes in accordance with a voltage applied thereto (column 4, line 11); a plurality of first electrodes provided on one of the pair of substrates Fig.24 (302); and at least one second electrode provided on the other of the pair of substrates Fig.24 (304), wherein: one picture frame has a period of 11.11 msec, and a set of three picture frames has 33.33 msec (column 12, lines 26-27) corresponding to a frame period for applying a signal to the liquid crystal layer includes: a first period (column 12, lines 28 and 29) in which a voltage is applied to the at least one second electrode, and a write signal (column 12, line 24) for writing information to the liquid crystal layer is applied to one of the plurality of first

electrodes, and a second period (column 12, line 31) in which a voltage is applied to the at least one second electrode. Accordingly, Mase et al. teach all the claimed limitations as recited in claim 1 with the exception of providing a reset signal.

However, Asao et al. teach a previous display state is a W state and is completely reset into, and held at a B state with a pulse width of at least Δt_3 (column 27, lines 2-4) corresponding to a reset signal for deleting the information written in the liquid crystal layer in the first period is applied to the one of the plurality of first electrodes.

It would have been obvious to utilize the reset signal as taught by Asao et al. in the electro-optical device disclosed by Mase et al. because this would provide a means for orienting the liquid crystal composition at least in an initial stage.

As for claim 2, Asao et al. teach after the writing pulse Δt , an auxiliary pulse of an opposite polarity or a reset pulse side is set (column 26, lines 31-32) corresponding to a voltage of the reset signal has a polarity which is opposite to a polarity of a voltage of the write signal.

As for claims 3 and 4, Asao et al. teach as shown in Fig.12 that the peak value of W is equal to the peak value of B corresponding to the reset signal has a peak value which is substantially equal to a peak value of the write signal and a product of a peak value of the write signal and an application period of the write signal is substantially equal to a product of a peak value of the reset signal and an application period of the reset signal.

As for claim 5, Asao et al. teach a layer of a liquid crystal material 61 having a spontaneous polarization are sandwiched between an active matrix substrate or plate 30.....(column 28, lines 50-56) corresponding to the liquid crystal material having spontaneous polarization.

As for claim 6, Asao et al. teach the liquid crystal 11 may preferably be of a liquid crystal material, such as a chiral smectic liquid crystal showing ferroelectricity or antiferroelectricity (column 7, lines 26-28) corresponding to the liquid crystal material is a smectic liquid crystal material.

As for claim 7, Asao et al. teach the darkest state, respectively, was performed under a condition that the cell position relative to the polarizer was fixed to provide the darkest state in an effective drive region of the cell under no electric field application (column 48, lines 16-21) corresponding to when no voltage is applied to the liquid crystal layer, the liquid crystal molecules of the smectic liquid crystal material are aligned so as to provide a darkest display.

As for claim 8, Asao et al. teach the liquid crystal layer 11 may preferably include a plurality of effective drive regions apart from each other wherein an electric field depending on the switching signal from a signal supply is applied to the prescribed effective drive regions via the electrodes 13a and 13 b to effect switching thus optically modulating light passing through the liquid crystal layer 11 to provide bright and dark states (column 20, lines 51-58) corresponding to when no voltage is applied to the liquid crystal layer, the liquid crystal molecules of the liquid crystal material are in one stable state; and when a voltage is applied to the liquid crystal layer, the liquid crystal

molecules are put into another state in accordance with a polarity and a value of the voltage.

As for claim 9, Asao et al. teach the chiral smectic liquid crystal develops bistable states showing a memory characteristic (column 1, lines 48-50) corresponding to the liquid crystal material has a bistable state.

As for claim 10, Asao et al. teach a pixel electrode Fig.19 (95) corresponding to at least one of the plurality of first electrodes is a pixel electrode, the pixel electrode is connected to an active element corresponding thereto, and (Fig.19) corresponding to the active element is connected to a source electrode and a gate electrode which substantially cross each other, and the active element is provided in the vicinity of an intersection of the source electrode and the gate electrode.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (703) 308-6413. The examiner can normally be reached on from Monday to Friday between 8:00AM and 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709 .

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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or faxed to:

(703) 872-9314 (for Technology Center 2600 only)


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance


Date 5-3-2004

Art Unit 2674

 5/6/04
RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600